

L 43088-65

ACCESSION NR: AT5007918

(3) Radiotekhnicheskiy institut AN SSSR (Radio Engineering Institute, Academy of Sciences SSSR). (4) Gosudarstvennyy proyektnyy institut GKAE SSSR (State Planning Institute, GKAE SSSR).

SUBMITTED: 26 May 64

ENCL: 00

SUB CODE: EE, NP

NO REF SOV: 002

OTHER: 001

Card 4/4

IVANITSKIY, V.Yu.; YAKOVLEV, B.N., spets. red.; VASIL'YEV, A.A.,
red.

[Advice to radio amateurs] Sovety radioliubiteliu. Mo-
skva, DOSAAF, 1964. 223 p. (MIRA 17:12)

YAKOVLEV, B.P. (Chuvashskaya ASSR)

Master of her work. Med. sestra 20 no.6:54-55 Je '61. (MIRA 14:7)
(STEPANOVA, ALEKSANDRA IVANOVNA)

USSR/General and Systematic Zoology. Insects. Harmful
Insects and Acarids. Forest Pests.

P

Abs Jour : Ref Zhur - Biol., No 3, 1959, No 11665

Author : Shiperovich V.Ya., Yakovlev B.P.

Inst : ~~Institute of Zoology AS KazSSR~~

Title : Harmful Insects and Spruce Restoration on Cleared
Spaces in Karelia.

KARELSK AFFIL. AS USSR

Orig Pub : Entomol. obozreniye, 1957, 36, No 3, 632-639

Abstract : The reason for the weakening and for the drying
of the spruce underbrush (U) and saplings (S) on
hewn-out areas is due to a sharp change in the
environmental medium (as a result of chopping
down the maternal canopy) and also by the subse-
quent activity of harmful insects. The greatest
destruction of S takes place in the first 4 years
after hewing. At a grouping, curtain arrangement

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USSR/General and Systematic Zoology. Insects. Harmful
Insects and Acarids. Forest Pests.

P

Abs Jour : Ref Zhur - Biol., No 3, 1959, No 11665

of U, the latter is less exposed to insect invasion and is generally better preserved than at a solitary, dispersed arrangement of the young spruce on the hewn-out areas. The greatest importance among the U and S pests have the pinechafer (*Hylobius abietis*) and the bark beetle (*Hylastes cunicularius*). Besides, the young spruce is very often damaged by *Chorbus abietis*, *Pissodes harcyniae*, *Pityogenes chalcographus*, *Ips duplicatus*, and *Pogonochaerus fasciculatus* and *Orthotomicus proximus* are often encountered on dead trees. To prevent a mass propagation of the pests and to increase the resistance of S and U against the invasion of insects, it is recommended to employ chopping methods which would safeguard the grouping arrangement of U. -- V.I. Grimal'skiy.

Card : 2/2

- 45 -

YAKOVLEV, P.P.
USSR/Foresty - Forest Biology and Typology.

K-2

Abs Jour : Ref Zhur - Biol., No 5, 1958, 20109

Author : Shiperovich, V.Ya., Yakovlev, B.P.

Inst : -

Title : The Effect of Pathological Factors on the Resistance of Undergrowth and Saplings in the Glades of the South Karelian Spruce Forests.

Orig Pub : Tr. Karel'sk. fil. AN SSSR, 1957, vyp. 7, 46-68.

Abstract : Investigations held at the laboratory for forest pathology of the Karelian affiliate of the Academy of Sciences SSR in 1952-1954 have established that spruce underwood viability in densely concentrated glades is considerably higher when the undergrowth is disposed in groups. When broadcast the major portion of the undergrowth dies off. The resistance of the spruce underbrush increases in time, whereas the viability of those grouped increases faster than those scattered.

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USSR/Forestry - Forest Biology and Typology.

K-2

Abs Jour : Ref Zhur - Biol., No 5, 1958, 20109

Insect pests attack the underwood particularly strongly during the period of the first three years after felling, during physiological plant depression. Beginning with the 5th year the large scale loss of undergrowth is checked through the resumption of its physiological activity and sharply curtailed number of pests. The pests are divided into 3 biological groups according to the degree of damage they inflict on underwood, their basic species are described together with the nature of their activities. The dynamics of underwood growth in clearings is characterized.

Card 2/2

USSR / General and Specialized Zoology. Insects
Forest Pests.

P

Abs Jour : Ref Zhur - Biol., No 17, 1958, No 78362

Author : Shiperovich, B. Ya.; ~~Yakovlev, B. P.~~

Inst : Karolian Branch AS SSSR

Title : Influence of Insect Pests on the Quality of Seeds
in the Forests of Karelia.

Orig Pub : Tr. Karel'sk. fil. AN SSSR, 1957, fasc. 7, 97-109

Abstract : In the last few years, damage to spruce cones has
been 90%. Most of the damaged cones were popula-
ted by the cone tortricid moth (*Lasperlesia stro-*
biella), the remainder by a complex of a few
insects: the coniferous moth (*Dioryctia abie-*
tella) and geometrid moth (*Eupithecia abietaria*),
gall midge of the scales of the spruce cones
(*Dasyneura strobil*) gall midge of the spruce
seeds (*Plemeliella abietina*), Larch

Card 1/2

USSR / General and Specialized Zoology. Insects. Forest
Pests.

F

Abs Jour : Ref Zhur - Biol., No 17, 1958, No 78362

fly (*Hylemyia laricicola*). The opening of the ripe cones depends on the species of the insect and on the extent of the damage to it. The seeds from the damaged cones lose germination energy and are 2-3 times less germinative than those from undamaged cones. In the cones were also found in a great number parasites of the pests, particularly parasitic Chalcids. Investigations of the quantity and quality of the seeds from the damaged cones indicate that it is not advisable to collect the cones if most of them are damaged by the caterpillars of tortricid, pyralid moths and rust fungi. Preliminary entomo-phytopathological analysis of the cones for the organization of procurement of the spruce seeds is necessary. -- A. F. Adrianov.

Card 2/2

YAKOVLEV, B.P.

Resin gall-moth and its role in the formation of rotten spots in
pine trees in Karelia. Izv.Kar. i Kol'.fil.AN SSSR no.3:103-106
' 58. (MIRA 11:12)

1. Institut lesa Karel'skogo filiala AN SSSR.
(Karelia--Pine--Diseases and pests) (Moths)

SHIPEROVICH, V.Ya.; YAKOVLEV, B.P.; VOLKOVA, I.P.

How pine weevil (*Hyllobius abietis* L.) affects the regeneration of conifers on areas of clearcutting in Karelia. Trudy Kar.fil. AN SSSR no.16:94-109 '59. (MIRA 13:4)
(Karelia--Pine--Diseases and pests)

YAKOVLEV, B.P.

Biology of the gall gnat *Kaltenbachella strobil* Winn. (Diptera, Itonididae) injurious to spruce cones. Ent.oboz. 38 no.1:129-134 '59. (MIRA 12:4)

1. Laboratoriya entomologii Karel'skogo filiala AN SSSR, Petrozavodsk.

(Karelia--Gall gnats)

(Spruce--Diseases and pests)

SHIPEROVICH, V.Ya.; YAKOVLEV, B.P.; RAYEVSKAYA, V.S., red.; SHEVCHENKO,
I.V., tekhn.red.

[Methods of determining the quality of seeds in spruce cones
injured by insects and fungi] Metody opredeleniia godnosti
elovykh shishek, povrezhdennykh nasekomymi i gribami. Petro-
zavodsk, Gos.izd-vo Karel'skoi ASSR, 1960. 15 p.

(Spruce--Diseases and pests)

(MIRA 14:1)

YAKOVLEV, B.P.

The larch fly *Hylemyia laricicola* Karl (Diptera, Anthomyiidae) damaging spruce cones and seeds in Karelia. Ent. oboz 39 no.4:802-805 '61.

(MIRA 14:3)

(Karelia--Flies) (Spruce--Disease and pests)

YAKOVLEV, Boris Petrovich; SHEKHTER, D.I., red.; SHEVCHENKO, L.V.,
tekh. red.

[Pests of spruce cones and seeds] Vrediteli shishek i semian
eli. Petrozavodsk, Gos.izd-vo Karel'skoi ASSR, 1961. 46 p.
(MIRA 16:7)

(Karelia—Spruce—Diseases and pests)
(Karelia—Seed production)

YAKOVLEV, B.P.

Gastric and duodenal phlegmon. Khirurgia Supplement: 43-44 '57.
(MIRA 11:4)

1. Iz Yarinskoy rayonnoy bol'nitsy Chuvashskoy ASSR.
(STOMACH--DISEASES) (DUODENUM--DISEASES)
(PHLEGMON)

YAKOVLEV, B. P., insh. (Tallin)

Visiting Cuban railroad workers. Put' 1 put. khos. 7 no.3:
31-33 '63. (MIRA 16:4)

(Cuba—Railroads—Track)

YAKOVLEV, B.P. (Tallin)

-With the railroaders of the Czechoslovak Socialist Republic. Put'
i put'khoz. 8 no.8:47 '64. (MIRA 17:9)

21181

S/141/60/003/006/020/025
E192/E382

16.9500 (1031, 1121, 1132)

AUTHOR: Yakovlev, B. I.

TITLE: Methods of Choosing the Parameters of the Correction
Circuits in Automatic Control Systems by means of
Nomograms

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Radiofizika, 1960, Vol. 3, No. 6, pp. 1093-1106

TEXT: A method of choosing the parameters of the correction
circuits, based on the frequency representation of the
characteristics of the system, is considered. The original
ideas for this method are based on the work of Kislov (Ref. 1).
The structure of various control systems can be represented
as shown in Fig. 1. The individual elements of this system
have the following transfer functions: W_1 - the transfer
function of the input element; W_K - that of the correction
element; W_{op} - that of the controlled object; W_y - that of
the amplifying stage and W_{no} that of the output element.

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Methods of Choosing

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Independently of the method of connecting the correction circuit in the system, the structure of the system can be so transformed that the transfer function consists of two factors: W_K , which represents the transfer function of the correction and W_0 , which represents the transfer function of the rest of the system. The characteristic equation of the system is therefore in the form:

$$W_K(p)W_0(p) + 1 = 0 \quad (1) .$$

If the real and the imaginary parts of Eq. (1) are equated to zero, the system is at the boundary of the stability when this condition is fulfilled. In the case of a correcting circuit of the first order, the transfer function of the circuit is in the form:

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Methods of Choosing

$W_K = (T_1 p + 1)/(T_2 p + 1)$. A suitable nomogram is constructed for choosing the parameters T_1 and T_2 . This is based on assuming that $\omega T_2 = \text{const.}$ and changing ωT_1 from zero to infinity. This operation is performed for various values of ωT_2 and a number of curves representing $\omega T_1 = \text{var}$ and $\omega T_2 = \text{const.}$ are constructed. The points with equal values of ωT_1 are connected by curves and a grid of curves is obtained; this is the desired nomogram. An example of such a nomogram is shown in Fig. 2. The transfer function of a correction circuit of the second order can be represented by:

$$W_K = \frac{l_2 p^2 + l_1 p + 1}{a_2 p^2 + a_1 p + 1} = \frac{T_2 p^2 + 2\tau T p + 1}{(T_{20} p + 1)(T_1 p + 1)}$$

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Methods of Choosing

Again, it is shown how a suitable nomogram can be constructed for this system. Further, the problem of obtaining the required margin of stability, while ensuring a minimum attenuation of the circuit, is also discussed. One of the basic difficulties in determining the correction circuit by the nomogram method lies in the fact that the choice of the quantity ξ , which gives the maximum margin of stability, requires the determination of the stability regions and the lines of the equimarginal stability for amplitudes and phases for various values of ξ . Consequently, a method permitting an approximate determination of ξ without resorting to the determination of the stability regions is indicated. There are 16 figures and 1 Soviet reference.

ASSOCIATION: Ural'skiy politekhnicheskiy institut
(Ural Polytechnical Institute)

SUBMITTED: May 24, 1960

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S/141/60/003/006/020/025
E192/E582

Methods of Choosing

Fig. 1:

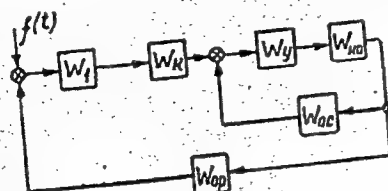
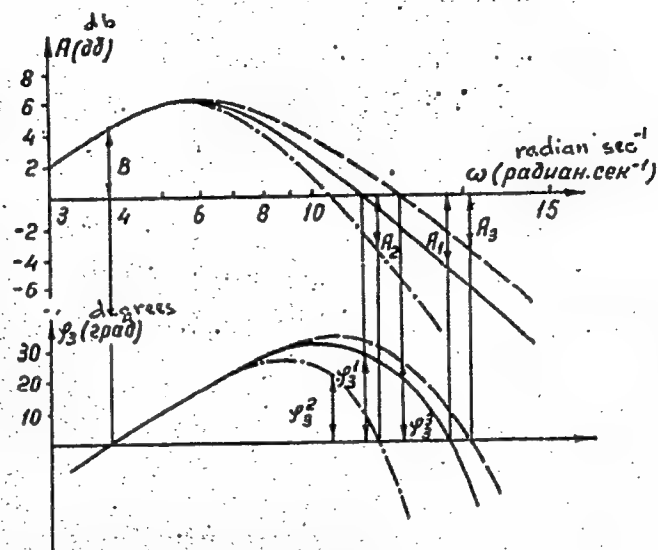


Рис. 1.

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Methods of Choosing

Fig. 2:



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L 18587-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/EWP(j)/EWA(h) Pc-l/Pr-l/Peb/Pu-l
 AF(EP)-2/AFET/ASD(a)-5/ESD/ESD(t) GG/RM S/0062/64/000/007/1357/1358
 ACCESSION NR: AP4042883

AUTHOR: Frankevich, Ye. L.; Yakovlev, B. S.

TITLE: Intrinsic photoeffect in solid pentane irradiated with fast electrons

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 7, 1964, 1357-1358

TOPIC TAGS: fast electron, fast electron irradiation, pentane, irradiation, photoeffect, electric conductivity, radiation chemical process

ABSTRACT: The electric conductivity brought about by irradiation of pentane at 80 K with electrons of 1.6 Mev energy was measured in this study of charged particle formation in organic materials by irradiation and its role in radiation chemical processes. The magnitude of σ depended on the dose rate I according to the relation $\sigma = kI^{\Delta}$, where Δ increased from 0.55 to 0.98 as I increased from 6×10^{-3} to 4 Mrad/min. Such a relationship is described by a model in which the capture and recombination of current carriers excited by fast electrons takes place by means of traps of one sort which are available in the materials before

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ACCESSION NR: AP4042883

irradiation. Illuminating the sample during or immediately after irradiation increased the electric conductivity. The observed change in the photosensitivity spectrum of the sample with increasing irradiation dosage (to 100 Mrad) is apparently associated with the appearance of traps formed in the course of irradiating the organic materials. Orig. art. has: 1 figure.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics Academy of Sciences SSSR)

SUBMITTED: 22Apr64

ENCL: 00

SUB CODE: NP,

OC

NO REF SOV: 000

OTHER: 000

Card 2/2

YAKOVLEV, B.S. (Chelyabinsk)

Study of automatic control systems with delay using nomograms
of the dynamic links. Izv. AN SSSR. otd. tekhn. nauk. tekhn.
kib. no.3:177-181 My-Je '63. (MIRA 16:7)

(Automatic control)

FRANKEVICH, Ye.L.; YAKOVLEV, B.S.

Concentration of ions accumulated in saturated hydrocarbons irradiated
at low temperature. Izv. AN SSSR. Otd. khim. nauk no. 9:1699 p. 162.
(MIRA 15:10)

1. Institut khimicheskoy fiziki AN SSSR.
(Hydrocarbons) (Ions) (Radiation)

YAKOVLEV, B.S.

Method for the analysis of automatic control systems by means of
nomograms. Izv.vys.ucheb.zav.; prib. 6 no.3:36-44 '63.

(MIRA 16:9)

1. Chelyabinskiy politekhnicheskii institut. Rekomendovana kafedroy
avtomatiki i telemekhaniki.

5
I-9902-63

EPF(c)/EWP(j)/EWT(m)/BDS-Pr-4/Po-4-EM/MAY/WW/JFW

ACCESSION NR: AP3000420

S/0076/63/037/005/1105/1112

AUTHOR: Frankevich, Ye. L.; Yakovlev, B. S.

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65

TITLE: Relaxation polarization in saturated hydrocarbons irradiated at low temperatures.

SOURCE: AN SSSR. Zhurnal fizicheskoy khimii, v. 37, no. 5, 1963, 1106-1112

TOPIC TAGS: high voltage polarization, radiolysis, free radicals, saturated hydrocarbons

ABSTRACT: The irradiation of saturated hydrocarbons such as hexane, heptane, nonane, decane, undecane and tetradecane with 50 Mrads at liquid nitrogen temperature has revealed relaxation electrical processes or high voltage polarization. A mechanism has been proposed for the explanation of the observed relaxation processes which consists of a charge redistribution in certain types of ions. This movement of charges in such ions may be due to H^{sup+} or H^{sup-} migration. Migration of H^{sup+} and H^{sup-} between neighboring molecules is hindered. The activation energy of H^{sup+} or H^{sup-} migration in hexane has

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ACCESSION NR: AP3000420

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been calculated to be 0.06 ± 0.02 ev under the effect of 50 Mrad doses. The ion concentration shows that the contribution of the reactions of charged particles in radiolysis processes of saturated hydrocarbons can be attributed to the participation of free radicals. The high voltage polarization effect consists of a slow drop of current when the voltage is applied to the electrodes of the irradiated products. When the voltage is switched off, a slowly-diminishing reverse current is observed. The rise and fall of current is characterized by a time constant $T_{sub m}$, of several tens of seconds which increases with the increasing chain length. The authors are grateful to V. L. Tal'roze for the interest in this work and for valuable consultations." Orig. art. has: 7 figures.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Academy of Sciences SSSR, Institute of Chemical Physics)

SUBMITTED: 04Jul62 DATE ACQ: 19Jun63

ENCL: 00

SUB CODE: 00

NR REF SOV: 020

OTHER: 006

Card

2/2

ACCESSION NR: AP4024679

S/0103/64/025/002/0177/0187

AUTHOR: Yakovlev, B. S. (Chelyabinsk)

TITLE: Method for selecting automatic-control-system parameters from the specified regions of distribution of poles and zeros

SOURCE: Avtomatika i telemekhanika, v. 25, no. 2, 1964, 177-187

TOPIC TAGS: automatic control, automatic control parameters, automatic control theory, automatic control parameter selection, automatic control parameter nomogram

ABSTRACT: The necessary distribution of poles and zeros in the transfer function of a closed-loop n -th-order automatic-control system is determined on the basis of specifications describing the transient processes in the system. Dynamic-element parameters can be determined from the author's nomograms published earlier (IVUZ. Radiofizika, no. 6, 1960). Formulas are presented for

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ACCESSION NR: AP4024679

calculating the dynamic elements of the form of $p^N W_A(p)$, where $W_A(p)$ is of the first or second order and $N \geq 0$. The author believes that "in combination with other well-known methods of determining majorants and minorants with relative distribution of poles and zeros, etc., this method may be used for synthesizing n-th order automatic-control systems on the basis of a specified quality of transient processes." Orig. art. has: 9 figures, 30 formulas, and 2 tables.

ASSOCIATION: none

SUBMITTED: 27Mar63

DATE ACQ: 15Apr64

ENCL: 00

SUB CODE: CG, IE

NO REF SOV: 009

OTHER: 000

Card 2/2

L 26544-66 EPF(n)-2/EWA(h)/EWP(j)/EWT(m)/EWA(1) GG/RM -

ACC NR: AP6017358

SOURCE CODE: UR/0062/66/000/003/0402/0407

AUTHOR: Yakovlev, B. S.; Frankovich, Ye. L.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Investigation of the ionized states in irradiated saturated solid hydrocarbons

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 73, 1966, 402-407

TOPIC TAGS: hydrocarbon, photoconductivity, electron trap, alkyl radical, radiation chemistry

ABSTRACT: Photoconductivity in saturated hydrocarbons irradiated at low temperatures is associated with the freeing of electrons stabilized in traps, under the effect of light. Electron traps which apparently are alkyl radicals emerge in the radiolytic process in the substances studied. The spectral form of photoconductivity after irradiation with a dose of 0.3 megarads is determined by the electrons stabilized in the radicals. Thermally stimulated conductivity of the irradiated saturated hydrocarbons is principally caused by the movement of the positive charges. Orig. art. has: 6 figures and 1 formula. [JPRS]

SUB CODE: 07, 20 / SUBM DATE: 01Oct65 / ORIG REF: 008

Card 1/1

UDN: 537.57 + 547.21

ACC NR: AP6029213 SOURCE CODE: UR/0076/66/040/006/1327/1332

AUTHOR: Yakovlev, B. S.; Frankevich, Ye. L.

ORG: none

TITLE: Electric conductivity and photoconductivity induced by electron irradiation in frozen heptane

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 6, 1966, 1327-1332

TOPIC TAGS: heptane, photoconductivity, electric conduction, electron trapping, irradiation effect, electron radiation, electron recombination

ABSTRACT: Measurements of the electric and photoconductivity induced by 1.6 MeV electrons in frozen heptane were carried out at a temperature close to 77°K. From the kinetic standpoint, the close-to-linear dependence of the electric conductivity on the dose rate indicates that the removal of current carriers is a first-order process; this is possible only when the carrier recombination proceeds via traps. During the radiolysis, new traps accumulate which apparently are free radicals. Photoconductivity was manifested in heptane following the irradiation. The photoelectric effect is due to the liberation of carriers from the traps by the light. The dependence of the photocurrent on the irradiation dose made it possible to follow the kinetics of accumulation of electrons in traps present in heptane before the irradiation. When the concentration of deep traps in the solid phase is high, the electric conductivity may

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UDC: 541.15

L 06471-67

ACC NR: AP6029213

involve electrons seized by a trap in the field of "their own" positive ion. Recombination of electrons with "foreign" ions is possible. In addition to heptane, photoconductivity was also observed in hexane, octane, paraffin and ethyl alcohol. It is concluded that the study of photoconductivity may be used to study the processes of formation and accumulation of ions during radiolysis of organic compounds. Orig. art. has: 5 figures and 4 formulas.

SUB CODE: 0720/ SUBM DATE: 23 Nov 64/ ORIG REF: 005/ OTH REF: 010

Card 2/2 n. 18

VAKHRAMEYEV, I.I., doktor tekhn.nauk; YAKOVLEV, B.T., inzh.

Comments on G.L.Rozenblit's article "Expediency of using tower
headframes for multirope hoisting units." Shakht. stroi. 4
no.3;14-16 Mr '60. (MIRA 13:11)

1. Sverdlovskiy gornyy institut.
(Mine hoisting) (Rozenblit, G.L.)

YAKOVLEV, B.T., inzh.

Possibility of using multirope hoists as sinking machines.

Izv. vys. ucheb. zav.; gor. zhur. no.6:161-165 '61.

(MIRA 16:7)

1. Sverdlovskiy gornyy institut imeni Vakhrusheva. Rekomendovana
kafedroy stroitel'noy mekhaniki.

(Mine hoisting)

YAKOVLEV, B.T., inzh.

Economic efficiency of tower headframes. Izv. vys. ucheb. zav.; gor.
zhur. 6 no.7:56-64 '63. (MIRA 16:9)

1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva. Rekomendovana
kafedroy stroitel'noy mekhaniki Sverdlovskogo gornogo instituta.
(Shaft sinking—Equipment and supplies)

VAKHRAMEYEV, I.I., prof.; DOBRODEYEV, S.A., dotsent; YAKOVLEV, B.T.
starshiy prepodavatel'

Free horizontal vibrations of tower headframes with bearing
walls in the shape of a rectangle or a circle in a plane.
Izv. vys. ucheb. zav.; gor. zhur. 6 no.8:129-133 '63.
(MIRA 16:10)

1. Sverdlovskiy gornyy institut imeni V.V. Vakhrusheva.
Rekomendovana kafedroy stroitel'noy mekhaniki.

VAKHRAMEYEV, I.I., prof.; DOBRODEYEV, S.A., dotsent; YAKOVLEV, B.T., starshiy
prepodavatel'

Method of designing reinforced concrete tower-type headframes
with carrying walls calculated for forced oscillations. Izv. vys.
ucheb. zav.; gor. zhur. 6 no.9:54-63 '63. (MIRA 17:1)

1. Sverdlovskiy gornyy institut imeni V.V. Vakhrusheva.
Rekomendovana kafedroy stroitel'noy mekhaniki.

YAKOVLEV, B.V., kand.sel'skokhpz.nauk (Moskva)

For harvest protection. Priroda 51 no.9:116-117 S '62.
(MIRA 15:9)
(Plants, Protection of)

7. The Colorado potato beetle and preventative measures Moskva, Gos. izd-vo selkhoz
lit-ry. 1950. 63 p.

DA

1. Potato-beetle. 2. Insects, injurious and beneficial - Russia.

YAKOVLEV, B. I.

The Colorado potato beetle Moskva: "Molodaia Gvardiia", 1950. 47 p.

DA

1. Potato-beetle. I. Iakovlev, B.

YAKOVLEV, B.

USSR / General and Special Zoology. Insects.

P

Abs Jour: Ref Zhur-Biol., No 3, 1958, 11735

Author : Yakovlev B.

Inst : Not given

Title : Methods of Agrotechnical Control of the Colorado
Beetle.

Orig Pub: Zemledelie, 1956,⁴ No 11, 63-70.

Abstract: Chemical control of beetles secures the protection of potatoes only when used in combination with agrotechnical measures: potato field fertilization to be mixed with insecticides (especially with chlorindane); sowing after potatoes of crops that can be plowed; the planting of potatoes in humus-rich soils (or soils enriched with organic fertilizers) in early and post-harvest periods with healthy vernalised tubers of varieties which restore rapidly

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USSR / General and Special Zoology. Insects.

P

Abs Jour: Ref Zhur-Biol., No 3, 1958, 11735

Abstract: the green mass; wrapping up of the sprouts (covering them with 5 cm of soil); feeding the potatoes with fertilizers which raise their resistance to the highest level (calcium cyanamide and others); non-root feeding of the potatoes together with chemical control; composting the leaves after the harvest or mowing them down two to three days before the harvest.

Card 2/2

YAKOVLEV, B.

Potato beetle. IUn.nat. no.5:25 My '57.

(MIRA 10:7)

1. Ministerstvo sel'skogo khozyaystva SSSR.
(Potato beetle)

YAKOVLEV, B.V.

Measures against the Colorado beetle. Zashch. rast. ot vred. 1
bol. 3 no.3:44-46 My-Je '58. (MIRA 11:6)

1. Zaveduyushchiy sektorom po izucheniyu koloradskogo zhuka TSentral'-
noy karantinnoy laboratorii Ministerstva sel'skogo khozyaystva SSSR.
(Potato beetle)

PAVLOVSKIY, Ye.N., akademik, glavnyy red.; GILYAROV, M.S., otv.red.;
LORKH, A.G., red.; MEL'NIKOV, N.N., red.; FEDOTOV, D.M., red.;
YAKOVLEV, B.V., red.; ZENYAKIN, L.A., red.; SABLINA, T.B.,
red. izd-va; VOLKOVA, V.V., tekhn.red.

[Transactions of the International Conference on the Study of
the Colorado Beetle and the Development of Measures for its
Control] Trudy Mezhdunarodnogo soveshchaniia po izucheniiu
koloradskogo zhuka i razrabotke mer bor'by s nim. Moskva, Izd-vo
Akad.nauk SSSR, 1959. 329 p. (MIRA 12:8)

1. Mezhdunarodnoye soveshchaniye po izucheniyu koloradskogo
zhuka i razrabotke mer bor'by s nim, 1956. 2. Mezhdunarodnaya
stvennaya metodicheskaya komissiya po koloradskomu zhuku.
Akademiya nauk SSSR, Moskva (for Gilyarov). 3. Nauchnyy in-
stitut udobreniy i insektofungitsidov, Moskva (for Mel'nikov).
(Potato beetle--Congresses)

BULANKINA, M. M.; YAKOVLEV, B. V.; GOLUBINTSEVA, A. P.
DZHIYEMBAYEV, Zh. T.; ZNAMENSKIY, V. S.

Coordination conferences. Zashch. rast. ot vred. 1 bol. 5
no. 5:57-61 My '60. (MIRA 16:1)

(Plants, Protection of—Congresses)

YAKOVLEV, B. V.

Intensify research on plant immunity. Zashch. rast. ot vred.
1 bol. 5 no.11:60-61 N '60. (MIRA 16:1)

(Plants—Disease and pest resistance)

YAKOVLEV, B.V.

Destroyers of the Colorado beetle. Priroda 49 no.5:35-43
14 '60. (MIRA 13:5)
(Potato beetle--Diseases and pests)

YAKOVLEV, B.V.

Scientific session on crop protection problems. Zashch. rast.
ot vred. 1 bol. 7 no.9:57-58 S '62. (MIRA 16:8)

(Plants, Protection of --Congresses)

YAKOVLEV, B.V., kand.sel'skokhoz.nauk

Scientific problems of harvest protection. Vest. AN SSSR 32
no.9:138-140 S '62. (MIRA 15:9)
(Plants, Protection of)

YAKOVLEV, Boris Vladimirovich, kand. sel'khoz. nauk; ZHARKOVA,
V.G., red.

[Role of cultivation practices in the control of farm crop
pests] Rol' agrotekhniki v bor'be s vrediteliami sel'sko-
khoziaistvennykh kul'tur. Moskva, Izd-vo M-va sel'khoz.
RSFSR. 1963. 79 p. (MIRA 17:4)

RAKITIN, Yu.V., otv. red.; ARKHANGEL'SKIY, N.I., red.; KRETOVICH, V.L., red.; METLITSKIY, L.V., red.; SHTEYNBERG, D.M., red. [deceased]; SHCHERBINOVSKIY, N.S., red.; YAKOVLEV, B.V., red.; POVOLOTSKAYA, K.L., red.; SUSHKOVA, L.A., tekhn. red.; VOLKOVA, V.V., tekhn. red.

[Scientific principles in crop protection] Nauchnye osnovy zashchity urozhaya. Moskva, Izd-vo AN SSSR, 1963. 246 p.
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1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk im. V.I.Lenina. 2. Institut fiziologii rasteniy im. K.A. Timiryazeva AN SSSR, Moskva (for Rakitin). 3. Institut evolyutsionnoy fiziologii im. I.M.Sechenova AN SSSR, Leningrad (for Yakovlev). 4. Institut biokhimii im. A.N.Bakha AN SSSR, Moskva (for Metlitskiy).
(Crop yields)

YAKOVLEV, B.V., dotsent; TIL'MAN, A.O., dotsent

Some problems in developing a transportation system in the
Dnieper Valley. Transp.stroi. 16 no.1:37-38 Ja '66.
(MIRA 19:1)

1. Dnepropetrovskiy institut inzhenerov transporta.

YAKOVLEV, B.V.

42564. Voprosy Rekonstruktsii Strelnochnogo Khozyaystva SSSR. (S Prodisl. Red) Sbornik
Trudov DIIT'a (Dneporpetr. In-T Inzh Zh-D Transporta Im. Kaganovichal. vyp. 17, 1947
S 17-54--Prodolzh. Nachalol /Trudy DIIT'A, vyp 15.1945.

YAKOVLEV, B.V.

GIBSHMAN, Aleksandr Yevgen'yevich; IOANNISYAN, Ashot Isayevich; KONDRAT-CHENKO, Anatoliy Petrovich; YAKOVLEV, Boris Vonifat'yevich; BELEN'KIY, N.P., kandidat tekhnicheskikh nauk, redaktor; VLASOV, D.I., kandidat tekhnicheskikh nauk, redaktor; KHITROV, P.A., tekhnicheskii redaktor.

[Principles of planning railroads] Osnovy proektirovaniia zheleznykh dorog. Moskva, Gos. transp. shel-dor. izd-vo, 1954. 459 p.
(Railroad engineering) (MLRA 8:2)

YAKOVLEV, B.V.

AID P - 2187

Subject : USSR/Medicine

Card 1/1 Pub. 37 - 7/19

Authors : Yakovlev, B. V. and Kern, V. G.

Title : Use of aerosols obtained by means of compressed air for the disinfection of passenger cars

Periodical : Gig. i san., 5, 32-34, My 1955

Abstract : A method is described and recommended for the extermination of insects in passenger cars by means of DDT solutions. The compressed air, which is used for the testing of brakes and is always available in railroad switch yards, transforms these solutions into foggy substances. The cars are sprayed with these DDT aerosols which kill the insects and do not cause any material damage. This disinfection method is used now on the Oktyabr'skaya (October) Railroad. Six Russian references (1949-1951).

Institution : Medical and Epidemiological Station of the Oktyabr'skaya (October) Railroad

Submitted : Ap 21, 1954

YAKOVLEV, B. V.

AID P - 2891

Subject : USSR/Medicine

Card 1/1 Pub. 37 - 8/20

Author : Yakovlev, B. V.

Title : ~~XXXXXXXXXXXXXXXXXXXX~~
Cyanidation of passenger railroad cars during short exposure and reduced concentration of prussic acid

Periodical : Gig. i san., 9, 32-34, S 1955

Abstract : Deals with the problem of the extermination of insects in modern metal railroad cars. Recommends a revision of the instruction on cyanidation of cars issued in 1938. 1 ref.

Institution : Medical and Epidemiological Station of the Oktyabr' Railroad

Submitted : Je 26, 1954

KERN, V.G.; YAKOVLEV, B.V.

Experience in disinfection of surfaces with chloramine aerosols.
Zhur, mikrobiol. epid. i immun. 27 no. 4: 112-115 Ap '56. (MIRA 9:7)

1. Iz dorozhnoy i Leningrad-Moskovskoy sanitarno-epidemiologicheskoy
stantsii Oktyabr'skoy zheleznoy dorogi.

(CHLORAMIDE

aerosols for disinfection of surfaces)

(DISINFECTION AND DISINFECTANTS

surfaces, with chloramine aerosols)

(AEROSOLS

chloramine for disinfect.)

YAKOVLEV, B. V., KERN, V. G.

"Experience of the use of aerosols obtained by means of compressed air for the disinsectization and disinfection of surfaces."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1959.

YAKOVLEV, B.V.

Rapid cyanide treatment for passenger cars. Gig. i san. 24 no.4:
85-86 Ap '59. (MIRA 12:7)

1. Iz dorozhnoy sanitarno-epidemiologicheskoy stantsii Oktyabr'-
skoy zheleznoy dorogi.

(RAILROADS--SANITATION) (HYDROCYANIC ACID)

YAKOVLEV, B.V.; KERN, V.G.

Disinfectant properties of chloramine solutions as related to the degree of atomization; author's abstract. Zhur.mikrobiol., epid.i immn. 30 no.11:119 N '59. (MIRA 13:3)

1. Iz Dorozhnoy sanitarno-epidemiologicheskoy stantsii Oktyabr'skoy zheleznoy dorogi.

(CHLORAMINE)

YAKOVLEV, B.V., kand.tekhn.nauk

Engineering specifications for planning railroads in the
Chinese People's Republic. Zhel.dor.transp. 41 no.3:82-84
Mr '59. (MIRA 12:6)
(China--Railroad engineering)

YAKOVLEV, B.V., kand.tekhn.nauk, dotsent

Accuracy of technical and economic calculations in the comparison
of alternate plants. Trudy DIIT no.30:129-133 '60.
(MIRA 14:12)

(Railroads--Economics of construction)
(Railroad engineering)

GIBSHMAN, Aleksandr Yevgen'yevich, prof.; IOANNISYAN, Ashot Isaayevich, prof.; KONDRATCHENKO, Anatoliy Petrovich, dots.; YAKOVLEV, Boris Vond'fat'yevich, dots.; ORLOV, V.N., prof., doktor tekhn.nauk, retsenzent; KARASIK, V.Ya., kand. tekhn. nauk, dots., retsenzent; BOCHIKAREV, N.G., ekonomist, retsenzent; PETROV, M.A., inzh., red.; MAKUNI, Ye.V., tekhn. red.

[Fundamentals of the planning and design of railroads] Osnovy proektirovaniia zheleznnykh dorog [By] A.E. Gibshman i dr. Pod red. A.I. Ioannisiyana. Izd. 2., perer. Moskva, Transzheldorizdat, 1962. 347 p. (MIRA 16:1)

(Railroad engineering)

TIL'MAN, A.O., dotsent; YAKOVLEV, B.V., dotsent

Develop technical and economic design models of new railroads.
Transp.stroi. 13 no.10:50-52 0 '63. (MIRA 17:8)

1. Dnepropetrovskiy institut inzhenerov zheleznodorozhnogo
transporta.

GOL'DSHEYN, M.N., prof.; ZHEREBTSOV, I.V.; TOL'SKAYA, S.Ye.; FRISHMAN, M.A.;
LEVANKOV, I.S.; ROZENBERG, A.M.; BELASHOV, D.A.; TSERKOVNITSKAYA, A.I.;
LAPIDUS, L.S.; YAKOVLEV, B.V.; GUBENKO, Ye.N.; VICHEREVIN, A.Ye., red.

[Preventing the deformation of tracks and structures overlaying
mine workings.] Preduprezhdenie deformatsii puti i sooruzhenii nad
shakhtnymi podrabotkami. Moskva. Transport, 1964. 65p. (Voprosy
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"APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001961910012-1

Y. A. KOUTLEY B. Y. A.

APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001961910012-1"

YAKOVLEV, B.Ya., podpolkovnik, voyennyy letchik vtorogo klassa; GAREYEV, V.G.,
mayor, voyennyy shturman pervogo klassa

Transport planes en route. Vest.Vozd.Fl. no.3:46-49 Mr '61.
(MIRA 14:6)
(Transport planes)

YAKOVLEV, Boris Yevgen'yevich; ZVIAGEL'SKIY, M.M., red.; AKKERMANN, D.A.,
red.; ROGOVSKAYA, Ye.B., red.; KRYUCHKOVA, V.N., tekhn.red.

[Czech-Russian radio engineering dictionary] Cheshsko-russkii
radiotekhnicheskii slovar'. Pod red. M.M. Zviagel'skogo.
Moskva, Glav.red.inostr.nauchno-tekhn.slovarei Fizmatgiz, 1960.
364 p. (MIRA 14:4)

(Radio--Dictionaries)
(Czech language--Dictionaries--Russian language)

YAKOVLEV, B.Ye.; MASLYANIKOV, V.A.; MOROZOV, K.V., red.; MURASHOVA,
L.A., tekhn. red.

[Explosion under water] Vzryv pod vodoi. Moskva, Voenizdat,
1963. 74 p. (MIRA 16:10)
(Underwater explosions)

YAKOVLEV, D. and VESHCHIKOV, A.

"Keeping Aloof from Economic Problems," Partiynaya Zhizn', No.13, pp. 43-48,
1955

Summary of article D 399735

YAKOVLEV, D., stalevar-pensioner.

Message from a working pensioner. Sov.profsoiuzy 4 no.10:37 0 '56.
(MLBA 9:11)

(Steelworkers)

YAKOVLEV, D.; KUZNETSKIY, G.

Personnel for power engineering. Prof. tekhn. obr. 18 no. 12:9.
11 D '81. (MIRA 14:12)

1. Remeslennoye uchilishche No. 30, Leningrad.
(Electric engineering--Study and teaching)

YAKOVLEV, D.

~~Color-bearer.~~ Voenn. znaniya. 39 no.9:10 S '63.

(MIRA 16:10)

1ST AND 2ND CROSS										100 AND 4TH CROSS									
PROCESSING AND PROPERTIES INDEX																			
YAKOVLEV, D. A.										112									
Ca																			
<p><i>Bacteriophage of lactic acid streptococci. D. A. Yakovlev. Microbiology (U. S. S. R.) 8, 932-49 (in English, 1960) (1939).—This bacteriophage (I) is the cause of retardation and failure of coagulation of milk used in margarine prepn. The I was isolated from a strain of <i>Streptococcus cremoris</i>. It is absent in fermented milk. In milk it resists a temp. of 80° for 10 min., or 90° for 6 min. In a dry state it resists 95° for 2 hrs. It induces lysis at pH 5-6.5, and is resistant to lactic acid. The spontaneous lysis during fermentation of pasteurized or sterilized milk by lactic acid bacteria is preceded by agglutination of all bacterial cells. Shaking and stirring stimulate lysis and retard growth in secondary cultures. The latter, when grown on solid media, are temporarily resistant. On liquid media their resistance is lasting, but they remain carriers of I. At the moment of lysis the pH of the milk changes abruptly. Methylene blue is a good indicator for the detection of lysis in fermenting milk. Substitution of resistant bacteria is the only remedy against I under industrial conditions. T. L.</i></p>																			
ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION										100 AND 4TH CROSS									
100 AND 4TH CROSS										100 AND 4TH CROSS									

MELUZOVA, I.Z.; NOVOTEL'NOV, N.V.; YAKOVLEV, D.A.

Biosynthesis of vitamins in lactic acid starters [with summary
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(MIRA 12:1)

1. Leningradskiy tekhnologicheskii institut kholodil'noy promysh-
lenosti.

(VITAMINS, metab.

biosynthesis in lactic acid ferments (Rus)

(LACTIC ACID,

biosynthesis of vitamins in lactic ferments (Rus))

YAKOVLEV, D.A., inzh.

Method for harvesting potatoes in stages in the German Federal Republic.
Trakt. i sel'khoz mash. 32 no. 7:45-46 JI '62. (MIRA 15:7)
(Germany, West—Potatoes)(Germany, West—Potato digger (Machine))

YAKOVLEV, D.

Psychological aspects of physical education. Prof.-tekh. obr. 22 no.9:
32-33 S '65. (MIRA 18:9)

1. Direktor professional'no-tekhnicheskogo uchilishoha No.23, Lenin-
grad.

YAKOVLEV, D.A.

IRANIY, Pavel Bernardovich, inzhener; ZYBIN, Kirill Yur'yevich; UDAL'TSOV,
A.H., glavnyy redaktor; YAKOVLEV, D.A., inzhener, redaktor

[Pulse microohmmeter. Absolute permeameter] Impul'snyi mikroametr.
Absoliutnyi pronitsamer. Moskva, 1956. 10 p. (Pribory i stendy.
Tema 5, no. P-56-475) (MLRA 10:10)

1. Moscow. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii.
Filial.
(Ohmmeter) (Permeameter)

YAKOVLEV, D.A.

SHTEYNBOK, G.Yu., inzh., red.; YAKOVLEV, D.A., inzh., red.

[Equipment for the polarization of barium titanate plates.
Power coupler in the decimeter range] Ustanovka dlia poliarizatsii
plastin titanata barria. Otvetvitel' moshchnosti detsimetrovogo
diapazona. Moskva, 1956. 10 p. (Pribory i stendy. Tema 6, no.
P-56-506) (MIRA 10:12)

1. Moscow. Vsesoiuznyy institut nauchnoy i tekhnicheskoy informatsii.
(Polarization (Electricity)) (Electric cables) (Barium titanate)

BOYDEX, Semen Abramovich, inzhener; YAKOVLEV, D.A., inzhener, redaktor;
UDAL'TSOV, A.N., glavnyy redaktor

[Impulse device for acoustical measurement] Impul'snaya ustanovka
dlya akusticheskikh izmerenii. Tema 7, no.P-56-408. Moskva,
Akademiya nauk SSSR, 1956. 20 p. (MIRA 10:3)
(Sound--Measurement)

BRANFENBRENER, Anatoliy Aleksandrovich; LYUSTIBERG, V.F., inzh.,
ved. red.; YAKOVLEV, D.A., inzh., red.; SOROKINA, T.M.,
tekhn. red.

[Central wobulator for visual sligment of the IF of AM and
FM channels of radio receivers]TSentralizovannyi generator
kachaiushcheisia chastoty dlia vizual'noi nastroiки AM i
ChM traktov promezhutchnoi chastoty radioveshchatel'nykh
priemnikov. Moskva, Filial Vses.in-ta nauchn. i tekhn.
informatsii, 1958. 13 p. (Peredovoi nauchno-tekhnicheskii i
proizvodstvennyi opyt. Tema 36. No.P-58-114/15)

(MIRA 16:3)

(Radio--Receivers and reception)
(Oscillators, Electron-tube)

SOKOLIK, Anatoliy Ioniasovich; CHARNETSKIY, Konstantin Konstantinovich;
POMICHEV, Aleksey Georgiyevich; LYUSTIBERG, V.F., inzh., ved.
red.; YAKOVLEV, D.A., inzh., med.; SOROKINA, T.M., tekhn.red.

[High-voltage OK-19M oscillograph system] Vysokovol'tnaia os-
tsillograficheskaya ustanovka OK-19M. Moskva, Filial Vses. in-
ta nauchn.i tekhn.informatsii, 1958. 15 p. (Peredovoi nauchno-
tekhnicheskii i proizvodstvennyi opyt. Tema 35. No.P-58-25/2)

(MIRA 16:3)

(Cathode ray oscillograph)

SOLOMONOV, Vasilii Georgiyevich; LYUSTIBERG, V.P., inzh., ved. red.;
YAKOVLEV, D.A., inzh., red.; SOROKINA, T.M., tekhn. red.

[Device for synthesizing characteristics (magazine with various characteristics)] Ustroistvo dlia sinteza kharakteristik (magazin kharakteristik). Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 34 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 36. No.P-58-9/4) (MIRA 16:3)
(Television--Equipment and supplies) (Electric filters)
(Attenuators (Electronics))

LENOV, Nikolay Nikolayevich, kand. tekhn. nauk; GRYAZNOV, Georgiy Mikhaylovich, inzh.; LYUSTIBERG, V.F., inzh., ved. red.; YAKOVLEV, D.A., inzh., red.; SMIRNOV, B.M., tekhn. red.

[Electronic differential analyzer]Elektronnyi differentsial'-nyi analizator. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 61 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 40. No.P-58-43/2) (MIRA 16:3)
(Electronic differential analyzers)

AUTHOR: Yakovlev, D.A. SOV/115-58-1-27/50

TITLE: The Effective Plane of Coils for Measuring Magnetic Induction (Effektivnaya ploshchad'katushek dlya izmereniya magnitnoy induktsii)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 1, pp 55 - 56 (USSR)

ABSTRACT: Measurements of magnetic induction by a ballistic galvanometer or a fluxmeter are made with the aid of a sensing coil. The constant of a sensing coil is equal to the product of the number of the coil's turns and the coil's effective plane. The author calculates the constant and the effective plane of a round (straight cylindrical) uniformly wound coil, and of a rectangular coil, and evolves equations for the approximate determination of the effective plane for both these common cases.

1. Magnet coils--Properties 2. Mathematics

Card 1/1

16.4100

25823

S/142/60/003/006/013/016

E032/E114

AUTHOR: Yakovlev, D.A.

TITLE: On the best approximations of a linear function by harmonic polynomials

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Vol.3, No.6, pp. 654-657

TEXT: The linear function to be approximated to in the interval $(-\pi, \pi)$ is of the form $y_1 = \tau$ and the approximating function is taken in the form

$$y_2(n) = \sum_{k=1}^n A'_k(n) \sin k\tau$$

Let the difference between these two functions be denoted by

$$\ell(n) = y_1 - y_2(n).$$

In order to obtain the best approximation to the function y_1 by the function $y_2(n)$ it is necessary and sufficient for the modulus of the difference $\ell(n)$ over the above interval to reach

Card 1/7

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E032/E114

On the best approximations of a

its maximum value $L(n)$ a finite number of times, and the sign of the deviation should change in successive maximum deviations. Figs. 1, 2 and 3 show graphs of the deviation $\delta(n)$ for $n = 1, 2$ and 3 respectively. When $n = 1$, y_2 is of the form

$$y_2(1) = A_1(1) \sin \tau,$$

while for $n = 2$ and $n = 3$ the forms are

$$y_2(2) = A_1(2) \sin \tau - A_2(2) \sin 2\tau$$

and

$$y_2(3) = A_1(3) \sin \tau - A_2(3) \sin 2\tau + A_3(3) \sin 3\tau.$$

The general expression for the approximating function, which is in fact the best approximation to the linear function in the sense of Chebyshev, is:

$$y_2(n) = \sum_{k=1}^n (-1)^{k+1} A_k(n) \sin k\tau.$$

In order to determine the amplitudes $A_k(n)$, the modulus of the

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S/142/60/003/006/013/016

E032/E114

On the best approximations of a

maximum deviation $L(n)$ and the interval over which the best approximation is obtained, it is necessary to solve a system of equations relating these quantities. The function $\ell(n)$ has an odd symmetry since all the terms in it have such symmetry. This can be used to reduce the number of equations in the system determining the required best approximation by a factor of 2. As an example, the following system for $n = 2$ is quoted:

$$\begin{aligned} L(2) &= \tau_1 - A_1(2) \sin \tau_1 + A_2(2) \sin 2\tau_1 \\ -L(2) &= \tau_2 - A_1(2) \sin \tau_2 + A_2(2) \sin 2\tau_2 \\ L(2) &= \tau_3 - A_1(2) \sin \tau_3 + A_2(2) \sin 2\tau_3 \\ 0 &= 1 - A_1 \cos \tau_1 + 2A_2(2) \cos 2\tau_1 \\ 0 &= 1 - A_1(2) \cos \tau_2 + 2A_2(2) \cos 2\tau_2 \end{aligned}$$

(1)

where τ_1 , τ_2 and τ_3 are the values of the argument for which the function $\ell(n)$ reaches the maximum values (Fig.2). In view of the above symmetry, the best approximation is obtained in the interval $(-\tau_3, \tau_3)$. The equations given in (1) are

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25823
S/142/60/003/006/013/016
E032/E114

On the best approximation of a

transcendental equations and hence can only be solved approximately. An analogous situation may occur with other values of n . In practice it is important to have tables giving the various best approximations. These are given in Tables 1-3. The latter tables give the magnitudes of the maximum values of $L(n)$, the length of the interval $(-r_n, r_n)$ over which the best approximations can be obtained, and the amplitudes $A_k(n)$ for $n = 1, 2$ and 3 .

There are 3 figures, 3 tables and 5 Soviet references.

ASSOCIATION: Institut radiotekhniki i elektroniki, AN SSSR
(Institute of Radioengineering and Electronics,
AS USSR)

SUBMITTED: to the Editors of NDVSh, August 4, 1959.
to the editors of Izv. vuz Radiotekhnika,
February 4, 1960.

Card 4/7

26803

S/142/61/004/002/005/010
E033/E435

9.4220

AUTHOR: Yakovlev, D.A.

TITLE: Kinematic theory of forming very short electron bunches
by a klystron-type buncher

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika,
1961, Vol.4, No.2, pp.198-203

TEXT: Periodical sequences of bunched electrons are used in many physical experiments. The aim of this article is to determine how short a bunch can be produced in a klystron-type buncher and how the parameters may be selected to obtain this shortest bunch. The problem is investigated by applying kinematic theory to obtain an expression for the length of the shortest attainable bunch and the function theory of least deviation from zero to obtain the conditions for shortest bunching. The method is applied to a single-resonator and to two-resonator bunchers of the klystron-type. The circuit for a single-resonator buncher is shown in Fig.1. The transit angle τ_{20} of the electrons at point A, a distance l_1 from the middle of the modulating resonator aperture, depends on the transit angle τ_1 of the electrons at the centre of this aperture and is given by the

Card 1/6

26803

S/142/61/004/002/005/010

E033/E435

Kinematic theory of forming ...

kinematic theory as

$$\tau_{20} = \tau_1 - X \sin \tau_1 + \theta_0 \quad (1)$$

where $\tau = \omega t$, t = time, ω = angular frequency of the modulating voltage, X is the bunching parameter at point A, θ_0 is the transit angle of unexcited electrons over the distance l_1 . θ_0 is constant and does not influence the bunching. Therefore, the expression is simplified to

$$\tau_2 = \tau_1 - X \sin \tau_1 \quad (2)$$

The bunches will have clearly defined boundaries only when $X > 1$ and only this case is considered. The graph of $\tau_2 = f(\tau_1)$ over a period of the modulating voltage for a single value of $X > 1$ is shown in Fig.2, where θ_3 is the electron bunching angle over the modulating voltage period and θ_c is the "bunch" angle, i.e. the length of the bunch expressed in angular measure. The function $\tau_2 = f(\tau_1)$ has two extreme points in the range $(-\pi, \pi)$, corresponding to the roots of the equation

Card 2/6

$$1 - X \cos \tau_1 = 0.$$

26805

S/142/61/004/002/005/010
E033/E435

Kinematic theory of forming ...

If straight lines are drawn, parallel to the axis, through the extreme points, then each line will intersect the curve $\tau_2 = f(\tau_1)$ at some point. In the region bounded by the straight lines and the ordinates of the intersection points, the function $\tau_2 = f(\tau_1)$ satisfies the P.L.Chebyshev conditions for least deviation from zero, indicating the formation of the shortest bunches. To obtain the optimum value of X , some other auxiliary condition is necessary, e.g. the fraction of all the emitted electrons which is bunched, or a specified bunch length. In amplifying klystrons, the auxiliary condition is to obtain the maximum first harmonic amplitude, for which $X = 1.84$. Graphs of θ_3 and θ_c plotted against X are produced, from which the electric parameters of single-resonator bunchers may be derived. The same method is applied to two-resonator bunchers (Fig.4) for which

$$\tau_{30} = \tau_1 - X \sin(\tau_1 - \theta) + \frac{X_{12} \cdot X_{23}}{2} \sin\left(2\tau_1 - \beta - \frac{\pi}{2}\right) + \theta_1 + \theta_2 + \frac{X_{12} \cdot X_{23}}{2} \cos \beta, \quad (4)$$

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Kinematic theory of forming ...

is applicable. X_{12} is the parameter of the bunching between the first and second resonators; X_{23} is the parameter of the bunching between point A and the second resonator under the action of the second resonator aperture voltage only; θ_1 is the transit angle of an unexcited electron from the first to the second resonator; θ_2 is the transit angle of such an electron from the second resonator to point A; X_{13} is the parameter for bunching between the first resonator and point A without account of the effect of the second resonator,

$$X_1 = \sqrt{X_{13}^2 + X_{23}^2 + 2X_{23}X_{13}\sin\beta}, \quad (5)$$

$$\theta = \arctg\left(\frac{X_{23}\cos\beta}{X_{13} + X_{13}\sin\beta}\right) \quad (6)$$

and $\beta - \theta_1$ is the phase difference between the voltages on the first and second resonators. θ_1 , θ_2 and

$\frac{X_{12} \cdot X_{23}}{2} \cos\beta$ do not affect the bunching and therefore only the expression:

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$$\tau_3 = \tau_1 - X \sin(\tau_1 - \theta) +$$

$$+ \frac{X_{12} \cdot X_{23}}{2} \sin\left(2\tau_1 - \beta - \frac{\pi}{2}\right).$$

(7)

is analysed. A graph of $\tau_3 = f(\tau_1)$ is produced and the region of least deviation from zero determined. The optimum value of X and its relation to $X_{12} \cdot X_{23}$ are found. Finally the bunching properties of single- and two-resonator bunchers are compared. There are 7 figures and 7 Soviet references.

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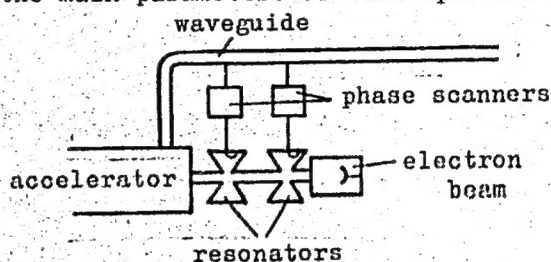
AUTHORS: Zhileyko, G. I., Yakovlev, D. A.

TITLE: Experimental investigation of a linear accelerator with an electron prebuncher

PERIODICAL: Atomnaya energiya, v. 11, no. 5, 1961, 447 - 449

TEXT: The authors investigated the dependence of the width of the spectrum and of the beam current on the main parameters of the experimental arrangement:

The double-resonator prebuncher was fed with h-f current via cables including phase shifters. The experiments were made with two, as well as with one, resonator. For both, the width ΔU of the spectrum of the accelerated electrons as well as the current I of the electron beam were measured as functions of the h-f phases in the



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